



## Long-term trend in thermal index and its impact on mortality in Hong Kong

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### Abstract:

This study aims to examine the long-term trend in thermal index and its relationship with mortality in Hong Kong. In summer (May-September), the annual mean Net Effective Temperature (NET) and the annual mean daily maximum NET in Hong Kong are found to be increasing at a rate of 0.25 and 0.15 per decade respectively for 1983-2005. These increasing trends are likely to be due to a rise in temperature under global warming and urban development as well as a fall in wind speed due to high density urban development in Hong Kong. "Excess" deaths associated with hot weather are found to occur when the daily maximum NET exceeds 26. Using Poisson regression, it is estimated that the mean mortality associated with excessive heat would double per unit rise in NET beyond 26. Thus, if NET continues to rise under global warming, the mortality associated with excessive heat would increase. In winter (November-March), the annual mean NET and the annual mean daily minimum NET have been increasing at a rate of 1.05 and 1.15 per decade respectively in the period 1983-2005. There are statistically significant negative-lagged correlations between the daily minimum NET and the daily mortality attributed to circulatory and respiratory diseases. In cold weather, "excess" deaths start to occur when the daily minimum NET is less than 14 and the mean mortality is estimated to increase by about 1.3-fold per unit fall in NET below 14. The elderly age group is found to be more vulnerable to NET changes when compared to other age groups. Thus if NET continues to rise under global warming, the mortality due to circulatory and respiratory diseases in cold weather is expected to decrease.

**Source:** <http://203.129.68.38/publica/reprint/r710.pdf>

### Resource Description

#### Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Temperature

**Temperature:** Extreme Cold, Extreme Heat

#### Geographic Feature:

resource focuses on specific type of geography

Urban

# Climate Change and Human Health Literature Portal

## Geographic Location:

resource focuses on specific location

Non-United States

**Non-United States:** Asia

**Asian Region/Country:** China

## Health Impact:

specification of health effect or disease related to climate change exposure

Cancer, Cardiovascular Effect, Injury, Respiratory Effect, Other Health Impact

**Cardiovascular Effect:** Other Cardiovascular Effect

**Cardiovascular Disease (other):** circulatory mortality; ischaemic heart disease mortality

**Respiratory Effect:** Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

**Respiratory Condition (other) :** respiratory disease mortality

**Other Health Impact:** heat related mortality; cold related mortality

**Population of Concern:** A focus of content

## Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

## Resource Type:

format or standard characteristic of resource

Research Article

## Timescale:

time period studied

Time Scale Unspecified